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MICHAUX'S PANICUM MURICATUM.

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For some years it has been well known to New England botanists that, besides the common introduced *Echinochloa Crusgalli* (L.) Beauv. and the essentially maritime *E. Walteri* (Pursh) Nash, we have a third species indigenous in sloughs, ditches, dune-hollows, pond-margins, etc., with the glabrous sheaths and comparatively short awns of the Old World *E. Crusgalli* but with the trichomes of the second glume and the sterile lemma quite unlike those of the introduced species. In European *E. Crusgalli* the margins and often the nerves of the second glume and the sterile lemma bear appressed-ascending fine trichomes which are not thickened at base or only slightly and inconspicuously so. In the indigenous American plant, however, these trichomes in the mature spikelets are stiffer and coarser, strongly divergent, and have a conspicuous papillose or pustular base, giving to the spikelets and consequently to the inflorescence a very muricate appearance. This indigenous plant of eastern America, found in the coastal region from southern Maine to Georgia and Mississippi and inland at low altitudes to the Great Lake region, South Dakota and Kansas, well matches Michaux's description of his *Panicum muricatum* from "Canada ad ripas lacus *Champlain* et ad lacum *Ontario*"; "glumis.... muricato-hispidissimis. *Obs.* affine C. *Galli:* flores habitu Cenchri";[1] and is clearly indicated by the present writer's notes, made in 1903, after examination of the Michaux type. The indigenous American plant is also further indicated by Poiret's full description of Michaux's Lake Champlain

[1] Michx. Fl. Bor.-Am. i. 47 (1803).

material as *P. pungens* (*P. muricatum* Michx., not Lam. [i. e. Retz.]), when he said: "Cette plante a l'aspect d'un *cenchrus* par ses fleurs; elle se rapproche, par ses autres caractères, du *panicum crus galli.*" [1] But in view of Hitchcock's identification of the Michaux type from Lake Champlain with the European *E. Crusgalli*,[2] it has seemed desirable to have the specimen again examined. M. Gagnepain has, therefore, most kindly compared for me specimens sent as nos. 1 and 2: no. 1, the indigenous plant which seemed to be Michaux's species; no. 2, the introduced *E. Crusgalli.* Of the former specimen he writes, under date of June 26, 1914.

"1. De tous points comparable au *Panicum muricatum* de l'herb. Michaux:

Mêmes pointes sur les glumelles, fortes, raides avec un renflement dur à la base. Ce sont ces aspérités qui ont sans doute fait donner à l'espèce son nom.

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J'ai écrit autrefois sous la dictée de M. Hitchcock, je crois, pour le *P. muricatum* Michx., P. Crus Galli L."

As stated, the European *E. Crusgalli,* of which the writer has examined many specimens, has much finer less spreading trichomes on the spikelets and is well matched by the commonly introduced plant of barnyards, cultivated fields, and similar artificial habitats. In North America rare plants seem to indicate a slight transition between the introduced and the indigenous plants but these specimens are so infrequent as to seem like probable hybrids of the two species. In view of the constancy of the European plant in the Old World, where it does not come in contact with the American plant with strongly muricate spikelets, this seems the reasonable explanation, and the indigenous American plant may be called

Echinochloa **muricata** (Michx.) n. comb. *Panicum muricatum* Michx. Fl. Bor.-Am. i. 47 (1803). *P. pungens* Poir. Encycl. Suppl. iv. 273 (1816). *P. Crusgalli,* var. *muricatum* Farwell, Mich. Acad. Sci. Rep. vi. 210 (1904).— The following are characteristic specimens. Quebec: shores of Lake Champlain, *Michaux* (type in herb. Michaux). Maine: Harding's, Brunswick, September, 1899, *K. Furbish;* wet clayey basin, North Berwick, August 27, 1894, *J. C. Parlin.* Vermont: Manchester, August 22, 1903, *Blanchard,* no. 22. Massachusetts: sandy head of a cove, Bay View, Gloucester, September 11,

[1] Poir. Encyc. Suppl. iv. 273 (1816).
[2] Hitchc. Contrib. U. S. Nat. Herb. xii. 146. (1908).

1913, *Fernald, Hunnewell & Long,* no. 8672; exsiccated pond-holes, Lakeville, August 26, 1913, *Fernald & Long,* no. 8668; Brewster, September 11, 1912, *F. S. Collins,* no. 1555; sandy river-shore, Stockbridge, August 24, 1902, *Hoffmann.* RHODE ISLAND: peaty margin of small pond north of Crescent Beach, Block Island, August 20, 1913, *Fernald & Long,* no. 2667. CONNECTICUT: Hart's Upper Reservoir, Berlin, September 27, 1900, *J. N. Bishop;* field, Bridgeport, August 19, 1893, *E. H. Eames.* NEW YORK: Castle swamp, Oneida, August 12, 1906, *House,* no. 2776. NEW JERSEY: Atlantic City, August, 1895, *Scribner.* WEST VIRGINIA: Sweet Springs, September 5, 1903, *Steele,* no. 201; Dry Fork River, near Harmon, September 12, 1904, *Greenman,* no. 52. NORTH CAROLINA: cultivated ground, Biltmore, July 23, 1897, *Biltmore Herb.* no. 809*a*. GEORGIA: wet meadows, Lafayette, August 2, 1900, *Harper,* no. 343. MISSISSIPPI: near Starkville, September 27, 1896, *Kearney,* no. 7. ONTARIO: Galt, September 1, 1908, *Heriot.* MICHIGAN: Alma, August 28, 1895, *C. A. Davis;* Owasso, August 24, 1890, *G. H. Hicks* (material compared by M. Gagnepain and pronounced identical with the Michaux plant). WISCONSIN: wet grounds, "Native!" Milwaukee, *Lapham.* ILLINOIS: gravelly beach, Sangamon R., White Heath, October 5, 1912, *A. S. Pease,* no. 14,090; swamp along lake shore, Waukegan, August 17, 1906, *Gleason & Shobe,* no. 320. MINNESOTA: Ft. Snelling, August 22, 1891, *E. A. Mearns,* no. 39. MISSOURI: fields, Whiteside, September 11, 1911, *J. Davis,* no. 1017. KANSAS: open ground, Riley Co., 1896, *J. B. Norton,* no. 884b. SOUTH DAKOTA: Huron, *D. Griffiths,* no. 773.

GRAY HERBARIUM.

NOTES ON NEW ENGLAND HEPATICAE,— XII.

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IN the present series of Notes the following additions to the hepatic flora of New England are reported and discussed: *Fossombronia cristula, Lophocolea alata, Cephalozia macrostachya,* and *Cephaloziella spinicaulis.* Two other species, *Cephalozia catenulata* and *Calypogeia paludosa,* are included for nomenclatorial reasons, and the paper is concluded by a list of additions to local state floras and a census of New England Hepaticae according to our present information.

1. FOSSOMBRONIA CRISTULA Aust. Proc. Acad. Philadelphia for